

REMARKS/ARGUMENTS

Claims 37, 39-53, and 55-69 are now active in the present application.

Claims 37, 45 and 53 were amended in the Amendment filed in the present case on April 27, 2005 to specify the order in which the steps of the process of the claims are performed; namely, (1) the amine contacting step is performed, then (2) the amine-contacted polymer electrolyte or precursor thereof is separated from the amine compound, followed by (3) either or both of the heat treatment and the base treatment steps.

Support for the amendment is found, for example, in Example 1, a portion of which is reproduced below for convenience. Numbers that correspond to steps (1), (2) and (3) above are included:

(1) At first, an amine treatment of contacting an amine compound with a perfluoro polymer electrolyte was conducted in accordance with the following procedures. That is, a Nafion 112F membrane (F112: the precursor of Nafion with sulfonyl fluoride group) of 50 μ m thickness and sized 1 cm \square 8 cm was immersed for 5 minutes in 80 ml of a flon solvent (R113) in a globe box. Then, 5 ml of a 1.0 M (mol/L) THF solution of lithium bis(trimethylsilyl)amide (hereinafter referred to as LBTMSA) as an amine compound was added under stirring to the flon solvent, and they were immersed for 15 minutes.

(2) Subsequently, the membrane was taken out and washed with R113 and THF solutions.

(3) Subsequent procedures were conducted in air at a room temperature. At first, the obtained membrane was put in a 25 % aqueous solution of sodium hydroxide, refluxed for 2 hours, and washed with water. Then, it was hydrolyzed being immersed in 6 M hydrochloric acid for 5 hours, and remaining sulfonyl chloride groups were converted into sodium sulfonate groups. Further, the membrane was immersed in 1 M sulfuric acid, refluxed for one hour, and then converted into proton type. The resultant membrane was immersed in purified water for 10 minutes, to be refluxed, washed with water, and then stored in purified water. (See pages 46 and 47 of the specification).

Applicants submit that the Examples explicitly disclose an embodiment wherein the step of contacting a solid polymer electrolyte or a precursor thereof with an amine compound is carried out “first” (see page 46, line 8).

A step of separating the thus obtained amine-contacted solid polymer electrolyte from the amine compound is carried out “subsequently” to the contacting step described above (page 46, line 18).

A step of treating the thus obtained washed solid polymer electrolyte with a base and refluxing (e.g., heating treating) is carried out as a step “subsequent” to the separating described above (see page 46, line 20).

Applicants also draw the Office’s attention to page 22, line 4 from the bottom to page 23, line 8 of the specification which describes the order of certain process steps.

Applicants submit that one of ordinary skill in the art readily recognizes that the step whereby the amine-contacted solid polymer electrolyte is “taken out and washed with R113 and THF solutions” is a disclosure of a step of separating of the amine-contacted solid polymer electrolyte or precursor thereof from the amine compound. Applicants draw the Office’s attention to new dependent Claims 67-69 wherein the separation is carried out by washing the amine-contacted solid polymer electrolyte or precursor thereof. Support for new dependent Claim 67-69 is found in Example 1 as described above.

Application No. 10/079,873
Reply to Office Action of January 25, 2006

Applicants submit that the application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

J. Derek Mason
Registration No. 35,270

Stefan U. Koschmieder
Registration No. 50,238